Mohammad Ghomi

Curriculum Vita

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School of Mathematics
Georgia Institute of Technology
Atlanta, GA 30332

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404-894-6579

Education

Johns Hopkins University, B.A. Mathematics, 1992
Johns Hopkins University, Ph.D. Mathematics (Advisor: Joel Spruck), 1998

Professional Experience

Visiting Assistant Professor, University of California at Santa Cruz, 1998–2000
Assistant Professor, University of South Carolina, 2000–2003
Visiting Associate Professor, Pennsylvania State University, 2003–2005
Associate Professor, Georgia Institute of Technology, 2003–2009
Professor, Georgia Institute of Technology, 2009–2015
Professor and Director of Graduate Studies, Georgia Institute of Technology, 2015–2019
Professor, Georgia Institute of Technology, 2019–Present

Research Interests

Geometry and topology of Riemannian submanifolds, including curves and surfaces in Euclidean space and convexity problems

Awards and Grants

J.J. Sylvester Prize in Mathematics, Johns Hopkins University, 1992
NSF Research Grant, PI (DMS-0204190, $97,000), 2002–2005
NSF CAREER Award, PI (DMS-0332333, $400,000), 2003–2009
NSF Research Grant, PI (DMS-0806305, $114,105), 2008–2012
NSF Research Grant, PI (DMS-1308777, $176,000), 2013–2017
NSF Research Grant, PI (DMS-1711400, $245,427), 2017–2021
Simons Fellowship ($132,000), 2020
NSF Research Grant, PI (DMS-2202337, $315,000), 2022–2025

Papers[1]

(1) Strictly convex submanifolds and hypersurfaces of positive curvature, *J. Differential Geom.*, **57** (2001) 239–271.
(2) Gauss map, topology, and convexity of hypersurfaces with nonvanishing curvature, *Topology*, **41** (2002) 107–117.
(3) Shadows and convexity of surfaces, *Ann. of Math.*, **155** (2002) 281–293.
(4) The problem of optimal smoothing for convex functions, *Proc. Amer. Math. Soc.*, **130** (2002) 2255–2259.
(5) Solution to the shadow problem in 3-space, in Minimal Surfaces, Geometric Analysis and Symplectic Geometry, *Adv. Stud. Pure Math.*, **34** (2002) 129–142.
(6) Skew loops and quadric surfaces (with B. Solomon), *Comment. Math. Helv.*, **77** (2002) 767–782.

[1]Preprints of all papers are available at www.math.gatech.edu/∼ghomi/Papers

(7) Circles minimize most knot energies (with A. Abrams, J. Cantarella, J. Fu and R. Howard), *Topology*, **42** (2003) 381–394.
(8) The convex hull property and topology of hypersurfaces with nonnegative curvature (with S. Alexander), *Adv. Math.*, **180** (2003), 324–354.
(9) A smooth convex loop with vanishing projections, *Topology*, **43** (2004), 245.
(10) Optimal smoothing for convex polytopes, *Bull. London. Math. Soc.*, **36** (2004), 483–492.
(11) Shortest periodic billiard trajectories in convex bodies, *Geom. Funct. Anal.*, **14** (2004), 295–302.
(12) The convex hull property of noncompact surfaces (with S. Alexander), *Amer. J. Math.*, **126** (2004), 891–897.
(13) Nonexistence of skew loops on ellipsoids, *Proc. Amer. Math. Soc.*, **133** (2005), 3687–3690.
(14) Tangent bundle embeddings of manifolds in Euclidean space, *Comment. Math. Helv.*, **1** (2006), 259-270.
(15) Total positive curvature of hypersurfaces with convex boundary, (with J. choe and M. Ritore), *J. Differential Geom.*, **72** (2006), 129–147.
(16) h-Principles for hypersurfaces with prescribed principal curvatures and directions (with M. Kossowski), *Tran. Amer. Math. Soc.*, **358** (2006), 4379–4393.
(17) Relative isoperimetric inequality outside convex domains in R^n, (with J. choe and M. Ritore), *Calc. Var. Partial Differential Equations*, **29** (2007), 421–429.
(18) h-principles for curves and knots of constant curvature, *Geom. Dedicata*, **127** (2007), 19–35.
(19) Topology of surfaces with connected shades, *Asian J. Math.* **11** (2007), 621–634.
(20) Totally skew embeddings of manifolds (with S. Tabachnikov), *Math. Z.*, **258** (2008), 499–512.
(21) Topology of negatively curved real affine algebraic surfaces (with C. Connell), *J. Reine Angew. Math*, **624** (2008), 1–26.
(22) Topology of Riemannian submanifolds with prescribed boundary (with S. Alexander, and J. Wong), *Duke Math. J.*, **152** (2010), 533–565.
(23) Relative isometric embeddings of Riemannian manifolds (with R. Greene), *Tran. Amer. Math. Soc.*, **363** (2011), 63–73.
(24) A Riemannian four vertex theorem for surfaces with boundary, *Proc. Amer. Math. Soc.*, **139** (2011), 293–303.
(25) Directed immersions of closed manifolds, *Geom. Topol.*, **15** (2011) 699–705.
(26) Normal curvatures of asymptotically constant graphs and Carathéodory's conjecture (with R. Howard), *Proc. Amer. Math. Soc.*, **140** (2012), 4323–4335.
(27) Deformations of unbounded convex bodies and hypersurfaces, *Amer. J. Math*, **134** (2012), 1585–1611.
(28) Vertices of closed curves in Riemannian surfaces, *Comment. Math. Helv.*, **88** (2013), 427–448.
(29) Tangent lines, inflections, and vertices of closed curves, *Duke Math. J.* , **162** (2013), 2691–2730.
(30) Tangent cones and regularity of real hypersurfaces (with R. Howard), *J. Reine Angew. Math*., **697** (2014), 221–247.
(31) Affine unfoldings of convex polyhedra, *Geom. Topol.*, **18** (2014), 3055–3090.
(32) Total diameter and area of closed submanifolds (with R. Howard), *Math. Ann.*, **363** (2015), 985–999.
(33) Boundary torsion and convex caps of locally convex surfaces, *J. Differential Geom.*, **105** (2017), 427–486.
(34) Dürer's unfolding problem for convex polyhedra, *Notices of AMS*, **65** (2018), 25–27.
(35) The length, width, and inradius of space curves, *Geom. Dedicata*, **196** (2018), 123–143.
(36) Torsion of locally convex curves, *Proc. Amer. Math. Soc.*, **147** (2019), 1699–1707.

(37) Nonnegatively curved surfaces with free boundary on the sphere (with C. Xiong), *Calc. Var. Partial Differential Equations*, **58** (2019), Art. 94, 20 pp.
(38) Rigidity of nonnegatively curved surfaces relative to a curve (with J. Spruck), *Int. Math. Res. Not. IMRN*, **17** (2020), 5387–5400.
(39) Pseudo-edge unfoldings of convex polyhedra (with N. Barvinok), *Discrete Comput. Geom*, **64** (2020), 671–689.
(40) Centers of disks in Riemannian manifolds (with I. Belegradek), *Pacific J. Math*, **304** (2020), 401–418.
(41) Shortest closed curve to inspect a sphere (with J. Wenk), *J. Reine Angew. Math*, **738** (2021), 57–84.
(42) Total curvature and the isoperimetric inequality in Cartan-Hadamard manifolds (with J. Spruck), *J. Geom. Anal*., **738** (2022), Article number: 50.
(43) Total mean curvatures of Riemannian hypersurfaces (with J. Spruck), *Adv. Nonliner Stud.*, 23 (2023) pp. 20220029.
(44) Rigidity of nonpositively curved manifolds with convex boundary (with J. Spruck), *Proc. Amer. Math. Soc.*, **151** (2023), 4935–4940.
(45) Minkowski inequality in Cartan-Hadamard manifolds (with J. Spruck), *Int. Math. Res. Not. IMRN*. **20** (2023), 17892–17910.
(46) Comparison formulas for total mean curvatures of Riemannian hypersurfaces, to appear in *Adv. Nonliner Stud.*
(47) Shortest closed curve to contain a sphere in its convex hull (with J. Wenk), to appear in *Bull. London Math. Soc.*
(48) Point selections from Jordan domains in Riemannian surfaces (with I. Belegradek), *submitted*.
(49) Convexity and rigidity of hypersurfaces in Cartan-Hadamard manifolds, *submitted*.
(50) Open problems in geometry of curves and surfaces, *in progress*.

Research Collaborators

(1) Aaron Abrams (Emory University)
(2) Stephanie Alexander (University of Illinois at Urbana-Champaign)
(3) Nicholas Barvinok (University of Michigan)
(4) Igor Belegradek (Georgia Tech)
(5) Jason Cantarella (University of Georgia)
(6) Jaigyoung Choe (Seoul National University, Korea)
(7) Chris Connell (Indiana University)
(8) Joseph Fu (University of Georgia)
(9) Robert Greene (UCLA)
(10) Ralph Howard (University of South Carolina)
(11) Marek Kossowski (University of South Carolina)
(12) Manuel Ritore (University of Granada, Spain)
(13) Bruce Solomon (Indiana University)
(14) Joel Spruck (Johns Hopkins University)
(15) Serge Tabachnikov (Pennsylvania State University)
(16) James Wenk (Georgia Tech)
(17) Jeremy Wong (University of Toronto)
(18) Changwei Xiong (Australian National University)

Talks

(1) *Global Analysis Seminar*, Johns Hopkins U., Sep. 1997
(2) *Colloquium*, U. of South Carolina, Jan. 1998

(3) *G.A.N.G. Seminar*, U. Mass. at Amherst, Feb. 1998
(4) *Differential Geometry Seminar*, Harvard University, Feb. 1998
(5) *Geometry Seminar*, M.S.R.I., Sep. 1998
(6) *Colloquium*, U.C. Santa Cruz, Jan. 1999
(7) *Differential Geometry Seminar*, U. of Illinois at Urbana, Mar. 1999
(8) *J.A.M.I. Conference on Minimal Surfaces*, Johns Hopkins U., Mar. 1999
(9) *Geometry and Topology Seminar*, U. of Pennsylvania, Mar. 1999
(10) *Geometric Analysis Seminar*, Stanford University, Apr. 1999
(11) *Geometry Seminar*, U.C. Berkeley, Feb. 2000
(12) *Geometry Seminar*, Indiana University, Apr. 2000
(13) *Geometry Seminar*, University of Georgia, Oct. 2000
(14) *Session on Curves & Surfaces*, A.M.S. Southeastern, Columbia, SC Mar. 2001
(15) *C.M.I. Conf. on Minimal Surfaces*, M.S.R.I., Jul. 2001
(16) *Colloquium*, Georgia Tech, Aug. 2001
(17) *Colloquium*, College of Charleston, Nov. 2001
(18) *Session on Applied Math.*, A.M.S. Southeastern, Atlanta, Mar. 2002
(19) *Colloquium*, College of Charleston, Apr. 2002
(20) *Comp. Vision Seminar, ECE Dept.* N.C. State University, , May. 2002
(21) *Conference on Convexity*, P.I.M.S. at U. British Columbia, Jul. 2002
(22) *Session on Convex Geometry*, A.M.S. Eastern, Boston, Oct. 2002
(23) *Session on Optimal Geometry*, A.M.S. Central, Wisconsin, Oct. 2002
(24) *Analysis Seminar*, Johns Hopkins U., Nov. 2002
(25) *Analysis Seminar*, U. of Pennsylvania, Nov. 2002
(26) *Colloquium*, Georgia Tech, Jan. 2003
(27) *Colloquium*, Indiana University, Feb. 2003
(28) *Analysis/PDE Seminar*, MIT, Mar. 2003
(29) *Southeast Geometry Conference*, College of Charleston, Mar. 2003
(30) *Session on Differential Geometry*, AMS Central, Bloomington, Apr. 2003
(31) *Colloquium*, University of Toledo, Apr. 2003
(32) *Southeast Geometry Seminar III*,U. of Alabama, Birmingham, May 2003
(33) *Georgia Topology Conference*, U. of Georgia, Jun. 2003
(34) *Conf. on Monge-Ampere Equations*, Banff Research Center, Aug. 2003
(35) *Dynamical Systems and Geometry Seminar*, Penn State, Sep. 2003
(36) *MASS Colloquium*, Penn State, Oct. 2003
(37) *Geometry and Topology Seminar*, Georgia Tech, Nov. 2003
(38) *Topology Seminar*, Penn State, Nov. 2003
(39) *Conference in honor of E. Feldman*, CUNY, Feb. 2004
(40) *Geometry-Topology Seminar*, University of Pennsylvania, Mar. 2004
(41) *The XIII School of Diff. Geometry, Plenary Talk*, U. of São Paulo, Jul. 2004
(42) *Geometry Seminar*, IMPA, Rio de Janeiro, Jun. 2004
(43) *MASSfest Conf. for REU students*, Penn State, Aug. 2004
(44) *Geometry Seminar*, Penn State, Sep. 2004
(45) *Geometry Seminar*, Georgia Tech, Dec. 2004
(46) *Geometry and Analysis Seminar*, Columbia University, Mar. 2005
(47) *Colloquium*, University of Alabama at Birmingham, Oct. 2005
(48) *Topology and Geometry Seminar*, University of Georgia, Nov. 2005
(49) *Session on Convex Geometry*, AMS National, San Antonio, Jan. 2006
(50) *Bloomington Geometry Workshop*, Indiana University, Apr. 2006

(51) *Session on Discrete and Convex Geom.*, Canadian Math. Soc., Calgary, Jun. 2006
(52) *Geometry Seminar*, University of Georgia, Sep. 2006
(53) *Differential Geometry/Analysis Seminar*, Emory University, Oct. 2006
(54) *Conf. on Geometric Analysis and Elliptic PDE's*, Johns Hopkins U., Oct. 2006
(55) *Conference on Geometric Analysis*, KIAS, Seoul, Sept. 2007
(56) *Geometry Seminar*, Duke University, Oct. 2007
(57) *Felix Klein Seminar*, University of Notre Dame, Feb. 2008
(58) *Geometry Seminar*, University of Georgia, Mar. 2008
(59) *Southeast Geometry Conference*, University of South Carolina, Mar. 2008
(60) *Geometry Seminar*, George Washington University, Mar. 2008
(61) *Analysis Seminar*, Johns Hopkins University, May 2008
(62) *Geometry-Topology Seminar*, University of Pennsylvania, May 2008
(63) *XV Brazilian School of Differential Geometry*, Fortaleza, Plenary Talk, July 2008
(64) *MASS Colloquium*, Penn State U., Sep. 2008
(65) *Session on Convex Geometry*, AMS Western, Vancouver, Oct. 2008
(66) *Colloquium*, Georgia Tech, Oct. 2008
(67) *Conference in honor of Herman Gluck*, Rutgers U., Newark, Nov. 2008
(68) *Colloquium and Fejes Toth Lecture* University of Calgary, Mar. 2009
(69) *Discrete Geometry Seminar* University of Calgary, Mar. 2009
(70) *Session on Differential Geometry*, AMS Central, Urbana, Mar. 2009
(71) *Colloquium*, College of Charleston, Apr 2009
(72) *Differential Geometry Seminar*, Indiana University, Apr 2009
(73) *Differential Geometry Seminar*, University of Minnesota, May 2009
(74) *International Symposium on Differential Geometry*, Rio de Janeiro, Aug. 2009
(75) *Differential Geometry/Analysis Seminar*, Emory University, Feb. 2010
(76) *Conference on Volume Inequalities*, Banff, Mar. 2010
(77) *Conference on Surface Theory*, Buzios, Brazil, Apr. 2010
(78) *Southeast Geometry Conference*, Charleston, Apr. 2010
(79) *Queen Dido Conference on Isoperimetry*, Carthage, Tunisia May. 2010
(80) *Colloquium*, University of Tenesse, Knoxville, Oct. 2010
(81) *Geometry Seminar*, Stanford University, Oct. 2010
(82) *Bay Area Differential Geometry Seminar*, MSRI, Oct. 2010
(83) *Differential Geometry/Analysis Seminar*, Emory University, Oct. 2010
(84) *Southeast Geometry Conference*, Columbia, May 2011
(85) *Colloquium*, University of Alabama, Birmingham, Oct. 2011
(86) *Pacific Rim Geometry Conference*, Osaka, Japan, Dec. 2011
(87) *KIAS Winter School*, Seoul, Korea, Feb. 2012
(88) *Southeast Geometry Conference*, Charleston, Mar. 2012
(89) *Geometric Analysis Seminar*, University of Wisconsin, Madison, Mar. 2013
(90) *Conference on Encounters in Geometry*, Cabio Frio, Brazil Jun. 2013
(91) *Conference on Metric Geometry*, Banff Research Station, Aug. 2013
(92) *Geometry Seminar*, University of Toronto, Nov. 2013
(93) *Colloquium*, University of Toronto, Nov. 2013
(94) *Smoky Cascade Geometry Conference*, University of Tennessee, Mar. 2014
(95) *Differential Geometry Seminar*, Ohio State University, Apr. 2014
(96) *Geometry Seminar*, University of Georgia, Dec. 2014
(97) *College of Sciences EXPLORE Open House*, Georgia Tech, Feb. 2015
(98) *College of Sciences EXPLORE Open House*, Georgia Tech, Apr. 2016

(99) *Colloquium*, Penn State U., Sep. 2016
(100) *MASS Colloquium*, Penn State U., Sep. 2016
(101) *Conference on Geometric Inequalities*, Busan, South Korea, Nov. 2016
(102) *AMS Sectional*, Charleston, Mar. 2017
(103) *Colloquium*, Lehigh University, Feb. 2018
(104) *MAA State Dinner of SC*, Keynote speaker, Columbia, SC, Nov. 2018
(105) *Analysis Seminar*, Johns Hopkins U., Sep. 2019
(106) *Analysis Seminar*, Emory U., Sep. 2019
(107) *Research Horizons Seminar*, Georgia Tech, Oct. 2019
(108) *Colloquium*, Georgia Tech, Oct. 2019
(109) *Geometry and Topology Seminar*, U. Pennsylvania, Oct. 2019
(110) *Student Colloquium*, Penn State U., Nov. 2019
(111) *Colloquium*, Penn State U., Nov. 2019
(112) *Colloquium*, Stanford U., Jan. 2020
(113) *Geometric Analysis Seminar*, U. Chicago, Jan. 2020
(114) *Geometry Seminar*, Carnegie Mellon U., Feb. 2020
(115) *Colloquium*, Carnegie Mellon U., Feb. 2020
(116) *Joint Analysis Seminar*, UCLA/Caltech, Apr. 2020
(117) *Differential Geometry Seminar*, TU Vienna, Oct. 2020
(118) *Differential Geometry Seminar*, Max Plank Institute, Nov. 2020
(119) *Geometry and Topology Seminar*, U. Luxembourg, Dec. 2020
(120) *Differential Geometry Seminar*, Rice University, Jan. 2021
(121) *Frontiers in Mathematical Science*, IPM, Iran, Apr. 2021
(122) *Calculus of Variations and PDE Conference*, ETH, Zurich, Jun. 2021
(123) *Pangolin Seminar*, Online, Oct. 2021
(124) *Geometry Seminar*, UGA, Apr. 2022
(125) *Workshop in Convexity and Probability*, Georgia Tech, May 2022
(126) *Riemannian Geom. Conference*, Florence, Jun. 2022
(127) *Harmonic Analysis and Convexity*, ICERM, Brown U., Sep. 2022
(128) *Geometry and Topology Seminar*, Indian Institute of Science, Bangalore, Oct. 2022
(129) *Xavier Colloquium (Inaugural speaker)*, TCU, Fort-Woth, TX Apr. 2023
(130) *Texas Geometry and Topology Conference*, TCU, Fort-Woth, TX Apr. 2023
(131) *Geometry beyond Riemann, Summer School*, ESI, Vienna, Sep. 2023
(132) *Geometria Aljamia*, Williams Papermaking Museuem, Atlanta, Nov. 2023

Undergraduate Research Supervised (REU projects)

- James Krysiak and Zachary McCoy, Penn State, Summer, 2004
- Arthur J. Friend, Georgia Tech, Fall 2006
- Brian Nakamura and Bobby DeMarco, Georgia Tech, Summer 2006
- Andrew McCullough, Georgia Tech, Summer 2012
- Arun Jambulapati, Georgia Tech (from U. Tennessee), Summer 2013
- Alena Kim, Alabama School of Fine Arts, Birmingham, Alabama, Fall 2014
- Biao Ma, Georgia Tech (from Jilin U., China), Spring 2016
- Tianhao Jian, Georgia Tech (from Jilin U., China), Spring 2016
- Nicholas Barvinok, Georgia Tech (from U. Michigan), Summer 2017
- Zetian Yan, Georgia Tech (from Jilin U., China), Summer 2018
- Devon Ingram, Georgia Tech, Summer 2018
- Alex Avery, Georgia Tech, Summer 2018

- Joshua Tso, Brandeis, Summer 2019
- Serge Blinov, Georgia Tech, Fall 2022

Graduate Student Supervision

- Yulia Tyurina, Penn State, PhD 2005 (supervised jointly with Serge Tabachnikov)
- James Wenk, Georgia Tech, PhD 2022 (won the best thesis award in the School of Math)
- Nicholas Barvinok, Georgia Tech, PhD 2023
- James Krysiak, Donald Sampson, Meredith Casey, Becca Winarski, Andrew McCullough, Hyun Ki Min (Reading courses at Georgia Tech).

Postdoc Supervision

Gordanna Stojanovic, Georgia Tech, 2007–2009.

Classes Taught

(1) 110.302, *Differential Equations*, Johns Hopkins University, Summer 1994
(2) 110.201, *Linear Algebra*, Johns Hopins University, Summer 1996
(3) Math100, *Introduction to Mathematical Proof*, UC Santa Cruz, Fall 1998
(4) Math11B, *Calculus with Applications*, UC Santa Cruz, Fall 1998
(5) Math22, *Calculus of Several Variables*, UC Santa Cruz, Spring 1999
(6) Math11B, *Calculus with Applications*, UC Santa Cruz, Spring 1999
(7) Math23B, *Multivariable Calculus*, UC Santa Cruz, Fall 1999
(8) Math121B, *Elem. Diff. Geometry & Topology*, UC Santa Cruz, Winter 2000
(9) Math19A, *Calculus for Science and Engineering*, UC Santa Cruz, Winter 2000
(10) Math19B, *Calculus for Science and Engineering*, UC Santa Cruz, Spring 2000
(11) Math141, *Calculus I*, U. South Carolina, Fall 2000
(12) Math241, *Vector Calculus*, U. South Carolina, Fall 2000
(13) Math544, *Linear Algebra*, U. South Carolina, Spring 2001
(14) Math142, *Calculus II*, U. South Carolina, Fall 2001
(15) Math550, *Vector Analysis*, U. South Carolina, Fall 2001
(16) Math142, *Calculus II*, U. South Carolina, Spring 2002
(17) Math550, *Vector Analysis*, U. South Carolina, Spring 2002
(18) Math142, *Calculus II*, U. South Carolina, Fall 2002
(19) Math734, *Differential Geometry*, U. South Carolina, Fall 2002
(20) Math141, *Calculus I*, U. South Carolina, Spring 2003
(21) Math598E, *Introduction to the h-Principle*, Penn State, Fall 2003
(22) Math426, *Introduction to Modern Geometry*, Penn State, Spring 2004
(23) Math497C, *Diff. Geometry of Curves & Surfaces*, Penn State, Fall 2004
(24) Math528, *Geometry and Topology II*, Penn State, Spring 2005
(25) Math 6452, *Differential Topology*, Georgia Tech, Fall 2005
(26) Math 2411, *Honors Calculus III*, Georgia Tech, Spring 2006
(27) Math 6455, *Differential Geometry I*, Georgia Tech, Fall 2006
(28) Math 6456, *Differential Geometry II*, Georgia Tech, Spring 2007
(29) Math 4441, *Differential Geometry*, Georgia Tech, Fall 2007
(30) Math 1502, *Calculus II*, Georgia Tech, Spring 2008
(31) Math 2401, *Calculus III*, Georgia Tech, Fall 2008
(32) Math 6457, *Geometry and Topology I*, Georgia Tech, Fall 2009
(33) Math 6458, *Geometry and Topology II*, Georgia Tech, Spring 2010
(34) Math 4432, *Intro. to Algebraic Topology*, Georgia Tech, Spring 2010
(35) Math 6455, *Differential Geometry I*, Georgia Tech, Fall 2010

(36) Math 6456, *Differential Geometry II*, Georgia Tech, Spring 2011
(37) Math 4432, *Intro. to Algebraic Topology*, Georgia Tech, Spring 2011
(38) Math 4441, *Differential Geometry*, Georgia Tech, Fall 2011
(39) Math 2401, *Calculus III*, Georgia Tech, Spring 2012
(40) Math 6455, *Differential Geometry II*, Georgia Tech, Spring 2012
(41) Math 1522, *Intro. to Linear Algebra*, Georgia Tech, Summer 2012
(42) Math 6457, *Geometry and Topology I*, Georgia Tech, Fall 2012
(43) Math 6458, *Geometry and Topology II*, Georgia Tech, Spring 2013
(44) Math 6455, *Differential Geometry I*, Georgia Tech, Spring 2013
(45) Math 4305, *Topics in Linear Algebra*, Georgia Tech, Summer 2013
(46) Math 4431, *Intro. to Topology*, Georgia Tech, Fall 2013
(47) Math 4320, *Complex Analysis*, Georgia Tech, Spring 2014
(48) Math 2411, *Honors Caculus III*, Georgia Tech, Spring 2014
(49) Math 4318, *Analysis II*, Georgia Tech, Spring 2015
(50) Math 6452, *Differential Topology*, Georgia Tech, Fall 2015
(51) Math 6455, *Differential Geometry*, Georgia Tech, Spring 2016
(52) Math 6452, *Differential Topology*, Georgia Tech, Fall 2016
(53) Math 4441, *Differential Geometry*, Georgia Tech, Fall 2017
(54) Math 6455, *Differential Geometry*, Georgia Tech, Spring 2018
(55) Math 4441, *Differential Geometry*, Georgia Tech, Fall 2018
(56) Math 6455, *Differential Geometry*, Georgia Tech, Spring 2019
(57) Math 8803, *Isometric Embeddings (Topics Class)*, Georgia Tech, Fall 2019
(58) Math 6455, *Differential Geometry*, Georgia Tech, Spring 2021
(59) Math 4441, *Differential Geometry*, Georgia Tech, Fall 2021
(60) Math 4318, *Analysis II*, Georgia Tech, Spring 2022
(61) Math 6455, *Differential Geometry*, Georgia Tech, Spring 2022
(62) Math 6452, *Differential Topology*, Georgia Tech, Fall 2022
(63) Math 2106, *Foundations of Mathematical Proof*, Georgia Tech, Spring 2023
(64) Math 6455, *Differential Geometry*, Georgia Tech, Spring 2023
(65) Math 6452, *Differential Topology*, Georgia Tech, Fall 2023

Professional Service

- Co-organized a session (with Ralph Howard) on *Geometry of curves and surfaces* at the AMS southeastern section meeting, Mar. 2001.
- Co-organized a session (with Igor Belegradek) on *Riemannian Geometry* at the AMS national meeting, Jan. 2005.
- Co-organized the "Queen Dido Conference on Isoperimetric Problems", Carthage, Tunisia, May 2010.
- Co-organizer of the *Southeast Geometry Seminar*, 2005–2017 (a semiannual series of conferences which rotated between Georgia Tech, Emory, and U. Alabama at Birmingham; see www.math.uab.edu/sgs).
- Reviewed papers for *Ann. Math., Inventiones, J. Differential Geom., Topology, Amer. J. Math., J. Knot Theory Ramifications, Indiana Univ. Math. J., Pacific J. Math., J. Comput. Appl. Math., P. Roy. Soc. Edinb. A, Math. Zeitschrift, Algebr. Geom. Topol., Amer. Math. Monthly, J. Geom. Anal., Geom. Dedicata, Bull. London Math. Soc., Discrete Comput. Geom., Arch. Math., Tran. Amer. Math. Soc., Nagoya Math. J., Illinois J. Math., Differential Geom. Appl.*, and *Mathematical Reviews*.
- Reviewed proposals for NSF and Simons Foundation.